

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023
 DateRun: 09/27/2023
 Experimenters: Amelia Wagner
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #1
 Substrates: Painted metal, Laminate
 PartType: Coupon
 Contaminants: DCC-17
 Cleaning Methods: Manual Wipe
 Analytical Methods: Colorimeter, Gravimetric
 Purpose: To test the effectiveness of Green Mountain Ammenities all purpose cleaner against other all purpose cleaners on the market.

Experimental Procedure: Eighteen coupons per cleaner, three of each substrate, were used. The initial weights of each coupon were taken. The initial L value (measure of fluroescence) was also taken with the colorimeter. The coupons were contaminated with DCC-17 Formulation using a handheld swab and dried overnight. The contaminated coupons were weighed and the dirty L value was measured before placing three coupons per cleaner of the same substrate into a Gardner Straight Line Washability (SLW) unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled. The Wypal and each coupon were treated with three sprays and cleaned for 20 cycles (~30 seconds of cleaning). Clean coupons dried for 24 hours before final weights were taken to asses the amount of soil removed. The final L value was taken in order to asses the amount of staining left behind by the soil.

Results:

Cleaner	Coupon	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG	% Overall
GMA D-Limonene 50%	Painted Steel	1.0072	0.1450	85.60	86.61	72.14
		0.9576	0.1240	87.05		
		0.8501	0.1091	87.17		
	VCT	0.9431	0.3520	62.68	57.67	
		0.9242	0.4191	54.65		
		0.8950	0.3966	55.69		
Ecolab Industrial Cleaner	Painted Steel	0.9352	0.2441	73.90	73.16	75.26
		1.0110	0.3143	68.91		
		0.8719	0.2034	76.67		
	VCT	0.9921	0.1015	89.77	77.35	
		0.8692	0.1901	78.13		
		1.0114	0.3625	64.16		
Easy Off Cleaner	Painted Steel	0.8356	0.2684	67.88	61.96	71.46
		0.9730	0.4693	51.77		
		0.9780	0.3301	66.25		
	VCT	0.9975	0.0762	92.36	80.95	
		0.9190	0.1679	81.73		
		1.0329	0.3226	68.77		

Gravimetric

Cleaner	Coupon	Initial L	Dirty L	Clean L	% AVG	% Overall
GMA D-Limonene 50%	Painted Steel	89.52	68.08	87.49	88.18	62.60
		89.39	58.59	85.9		
		89.25	44.65	82.71		
	VCT	59.27	49.54	53.37	37.02	
		59.1	48.47	51.6		
		55.6	47.27	50.79		
Ecolab Industrial Cleaner	Painted Steel	88.14	66.15	78.08	69.97	84.99
		87.98	71.97	82.04		
		86.97	60.56	85.07		

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	VCT	53.08	49.2	53.08	100.00	
		61.18	55.36	61.18		
		57.87	48.15	57.87		
Easy Off Cleaner	Painted Steel	86.31	69.31	73.76	40.67	70.34
		89.28	60.18	72.93		
		89.09	66.83	78.41		
	VCT	63.29	43.66	63.29	100.00	
		58.12	55.86	58.12		
		58.76	40.08	58.76		

Colorimeter

Summary:

Conclusion:

The GMA D Limonene cleaner performs comparatively to the other tested cleaners in removing soil. It is a somewhat effective cleaner. However, it performed the worst out of all the cleaners in removing staining (removed staining from paint steel, but not VCT). It is not effective in removing staining.